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भौतिकरहस्य उपनिषद्

Bhautika-Rahasya Upanishad

"The Secret Knowledge of the Physical Universe"

Drawn from the essence of the four Vedas of Science :

ब्रह्माण्डवेद *Cosmology*

शक्तिवेद *Physics*

द्रव्यवेद *Chemistry*

जीवनवेद *Biology*

रचयिता

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M.Sc.(Physics), B.Ed.

79 संस्कृत मंत्राः देवनागरी लिपौ

with English Interpretations

ॐ शान्तिः शान्तिः शान्तिः

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This Upanishad is dedicated to all seekers of Truth who see no contradiction between Science and the Sacred.

विषयसूची

Table of Contents

क्र.	अध्यायः	Chapter	Mantras
—	शान्तिपाठः	Opening Peace Chant	—
—	मङ्गलाचरणम्	Invocation	1–4
I	ब्रह्माण्डरहस्यम्	Secrets of the Cosmos	5–22
II	भौतिकरहस्यम्	Secrets of Physics	23–42
III	रसायनरहस्यम्	Secrets of Chemistry	43–59
IV	जीवनरहस्यम्	Secrets of Life	60–73
—	उपसंहारः	Closing	74–76
—	फलश्रुतिः	Fruits of Understanding	77–79
—	शान्तिपाठः	Closing Peace Chant	—
—	शब्दकोशः	Glossary of Sanskrit Terms	—
—	मंत्रसूची	Index of Mantras	—

प्रस्तावना
Preface

This Upanishad — *Bhautika-Rahasya Upanishad* (भौतिकरहस्य उपनिषद्) — is a meditative composition in the classical tradition of Sanskrit knowledge-poetry. Its purpose is singular: to contemplate the revelations of modern science through the lens of the Upanishadic spirit, so that the rational and the reverential may meet in a single flame of understanding.

The cosmos, the forces of nature, the fabric of matter, and the mystery of life itself — these inexhaustible rivers of knowledge flow through these seventy-nine mantras as a humble garland offered at the feet of wisdom.

Where modern scientific terminology had no Sanskrit equivalent, the plain English meaning of the word has been rendered faithfully into Sanskrit — not as transliteration but as translation. Thus Hydrogen becomes उदजनः (*udajanaḥ*, water-former), Oxygen becomes दीपनवायु (*dīpanavāyu*, flame-supporting gas), Carbon becomes अङ्गारः (*aṅgāraḥ*, coal-substance), Nitrogen becomes यबक्षरः (*yabakṣaraḥ*), and DNA becomes जीवनसूत्र (*jīvanasūtra*, life-thread). The unit of distance *kilometre* is rendered as सहस्रमानम् (*sahasramānam* — a thousand standard measures), and time units are expressed as क्षण for minutes and निमिष for seconds.

The mantras follow the classical अनुष्टुप् metre and related Vedic metres wherever possible. Each mantra is accompanied by an English interpretation that renders the spirit, not merely the letter, of the Sanskrit.

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शान्तिपाठः

Opening Peace Chant

ॐ भौतिकं ज्ञानमाध्यात्मिकं च उभे साधयतां नरः ।
भौतिकहीनो दरिद्रः स्यात् आध्यात्महीनो भ्रमेत् सदा ॥
द्वाभ्यां युक्तः पुरुषस्तु सुखी मुक्तो भवेद् ध्रुवम् ।
ॐ शान्तिः शान्तिः शान्तिः ॥

May the seeker cultivate both material and spiritual knowledge. One who lacks material knowledge becomes impoverished; one who lacks spiritual knowledge wanders ever in delusion. He who is endowed with both attains happiness and liberation without doubt.

Om, peace, peace, peace.

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मङ्गलाचरणम्

Invocation

मंत्रः 1

ॐ सत्यं ज्ञानमनन्तं यद् ब्रह्म विज्ञानरूपकम् ।
तस्मैनमो विश्वगुरोर्विज्ञानप्रदायिने ॥

That Brahman which is Truth, Knowledge, and Infinite — which is the very form of Scientific Understanding — to that universal Teacher, the Bestower of Knowledge, we bow.

मंत्रः 2

यस्माज्जातं जगत्सर्वं यत्र तिष्ठति सर्वदा ।
यस्मिन् लयं प्राप्नुयाद् विश्वं ब्रह्म तदक्षरम् ॥

From which the entire universe has arisen, in which it perpetually rests, and into which it will finally dissolve — that is the imperishable Brahman, the ground of all existence.

मंत्रः 3

चत्वारो ज्ञानमार्गाः ते साधकैः सेव्यतां सदा ।
ब्रह्माण्डशक्तिद्रव्याणां जीवनस्य च वेदनम् ॥

Four great paths of knowledge, which earnest seekers must pursue, are: the knowledge of the Cosmos, the knowledge of Energy, the knowledge of Matter, and the knowledge of Life.

मंत्रः 4

गुरवे ज्ञानदीपाय नमस्कारः सादरः ।
यत्प्रसादाद् विजानन्ति विद्वांसः सर्वमञ्जसा ॥

Reverential salutation to the Teacher who is a lamp of Knowledge, by whose grace the learned come to understand all things clearly and completely.

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प्रथमोऽध्यायः : ब्रह्माण्डरहस्यम्
Chapter I · Secrets of the Cosmos

मंत्रः 5

अनन्तकालात्पूर्वं च एकं बिन्दुमभूदिह ।
अनन्तघनतापूर्णं विश्वबीजमसंख्यकम् ॥

Before infinite time there existed a single Point — endowed with infinite density, the inexhaustible seed of the entire universe.

मंत्रः 6

तस्माद् बिन्दोर्महाविस्फोटो जातो महाशक्तितः ।
पञ्चदशाब्दकोटिभ्यः सृष्टिरेषा प्रसारिता ॥

From that Point, a Great Explosion (महाविस्फोट) burst forth with immense energy. From that moment, fifteen billion years ago, this creation has been expanding.

मंत्रः 7

उदजनः सौरवायुश्च प्रथमं समजायताम् ।
तयोः परस्परयोगाज्जातास्तारागणाः क्रमात् ॥

First were born Hydrogen (उदजनः, water-former) and Helium (सौरवायु, sun-born gas). From the gradual union of these two, clusters of stars were born in due course.

मंत्रः 8

प्रसारते विश्वमेतत् सर्वतो दिशि सर्वदा ।
तारापुञ्जाः परस्परं दूरयन्ते निरन्तरम् ॥

This universe perpetually expands in all directions at all times. Galaxies (तारापुञ्जाः, clusters of stars) continually move away from one another without ceasing.

मंत्रः 9

घनतायाः परिमाणे सत्यतिस्वल्पके यदि ।
विस्तरे चिरमेव स्यान्महासंकोचो न जायते ॥

If the average density of the universe is too small, the universe will expand forever. The Great Crunch (महासंकोचः) — a final collapse — will then not occur.

मंत्रः 10

कोटिशो गणनातीताः तारापुञ्जा विराजते ।

एकस्मिन् पुञ्जे तारास्तु द्विशतकोटिभिर्विदुः ॥

Beyond all counting, hundreds of billions of galaxies grace the universe. In a single galaxy, astronomers know that there are around two hundred billion stars.

मंत्रः 11

क्षीरनद्या इयं पुञ्जो मन्दाकिनीति कथ्यते ।
अत्र सूर्यः स्थितो यत्र भ्रमति पृथ्वी सहान्यैः ॥

This galaxy of ours is called the Milky Way (मन्दाकिनी). In this very galaxy our Sun rests, and around it the Earth and other planets revolve.

मंत्रः 12

प्रकाशवर्षनाम्ना तु मापनं खगदूरतः ।
वर्षैकं याति प्रकाशः तावती दूरता स्मृता ॥

The unit of measurement for distances between heavenly bodies is the Light-Year (प्रकाशवर्षम्) — the distance that light travels in one year, approximately 9.46×10^{12} सहस्रमान.

मंत्रः 13

सूर्याद् भूमेस्तु प्रकाशः साधिकाष्ट-क्षणेषु ।
प्राप्नोति भूमिमेषस्तु एतावद् दूरतो रविः ॥

The light from the Sun reaches the Earth in a little more than eight क्षण (minutes) — such is the distance of the Sun from us.

मंत्रः 14

यस्मात् तारात् प्रकाशस्तु कोटिवर्षैर्व्रजत्यलम् ।
स तारस्तु यथास्ति वा नास्ति वेति न जानिमः ॥

A star from which light takes millions of years to reach us — we cannot know whether that star still exists today or has already perished. We see the distant past, not the present.

मंत्रः 15

जात्यन्ति ज्वलन्ति चैव तारकाः क्रमशो नभे ।
वायुधूलिसमूहेभ्यो वायुमेघात् स्वयंभवाः ॥

Stars are born and burn and die in the heavens in due course. They arise spontaneously from clouds of gas and cosmic dust (वायुमेघः, gas-cloud) — the nurseries of stars.

मंत्रः 16

वर्णेन तारकातापं जानीयाद् धीमतां वरः ।
रक्ता शीतल-तारका श्वेता-नीला दाहिनी ॥

The wise can discern a star's temperature from its colour. Red stars are the coolest; white and

blue-white stars burn the hottest. Our yellow Sun is of moderate temperature.

मंत्रः 17

सूर्यः पीतवर्णो मध्यः उदजनः पक्नति ध्रुवम् ।
तदनलः सौरपाकात् सौरवायुर्जायते नितम् ॥

The Sun, of yellow colour and of medium scale, steadily fuses Hydrogen (उदजनः) into Helium (सौरवायु). From this solar furnace, immense heat and light are released without ceasing.

मंत्रः 18

अष्टौ ग्रहाः परिभ्रमन्ति सूर्यं नित्यम् एव हि ।
पृथ्व्यादयः स्वयं ज्योतिर्हीना रवितेजसा ॥

Eight planets perpetually revolve around the Sun. The Earth and the others do not shine by their own light — they only reflect the radiance of the Sun.

मंत्रः 19

पृथ्वी तु विलक्षणा ग्रहेषु सर्वेषु वर्तते ।
जलं प्राणः वायुश्च त्रयमिह प्राणिनां कृते ॥

Among all the planets, the Earth is uniquely singular. Water, life, and air — these three, so precious for living beings, are found abundantly here and nowhere else.

मंत्रः 20

पृथ्वी भ्रमति स्वाक्षे च सूर्यमभि च वत्सरे ।
ततो दिवाशरत्कालाः षड्ऋतुभिः प्रवर्तते ॥

The Earth rotates on its own axis and also revolves around the Sun over the course of a year. From these two motions arise the cycle of day and night and the procession of the six seasons.

मंत्रः 21

सर्वेष्वणुषु विद्यन्ते लोहरक्तस्य कणाः ।
तारकाविस्फोटजाता आकाशात् पतिताः भुवि ॥

The very atoms of iron in our blood were forged in the explosion of ancient stars. In this sense, we are all children of the heavens — cosmic matter given the gift of awareness.

मंत्रः 22

यद् दृश्यते यन्न दृश्यते ब्रह्माण्डे सर्वमेव हि ।
एकस्यैव महाशक्तेः विविधाः परिणामकाः ॥

All that is seen and all that is unseen in the cosmos — everything is the varied manifestation of a single primordial Energy. The universe is one undivided whole.

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द्वितीयोऽध्यायः : भौतिकरहस्यम्

Chapter II · Secrets of Physics

मंत्रः 23

प्रकृतिस्थाः सर्वघटनाः नियमैः शास्यते सदा ।
तन्नियमानां ज्ञानं भवेद् भौतिकं विज्ञानकम् ॥

All events that occur in nature are governed by fixed laws. The knowledge of these laws is what we call the science of Physics — the study of natural phenomena.

मंत्रः 24

गतिः क्रिया प्रतिक्रिया च बलेन नित्यम् एव हि ।
त्रयो नियमाः सुसिद्धाः ते गत्यर्थे प्रतिष्ठिताः ॥

Motion, action, and reaction — these are at all times governed by force. Three well-established laws of motion form the very foundation of all mechanics.

मंत्रः 25

विरामस्थं सदा तिष्ठेत् गतिमत् सदा चलेत् ।
यावद्बाह्यबलं नास्तीति प्रथमो नियमः स्मृतः ॥

A body at rest remains at rest, and a body in motion continues in motion, as long as no external force acts upon it. This is declared the First Law of Motion.

मंत्रः 26

द्रव्यराशिं त्वरणं च परस्परं गुणयेत् सुधीः ।
तत्प्रमाणं बलं ज्ञेयमिति द्वितीयो नियमः स्मृतः ॥

Let the wise multiply the mass of a body by its acceleration — the measure of that product is the force acting upon it. This is declared the Second Law of Motion, the fundamental relation between force, mass, and acceleration.

मंत्रः 27

क्रियायाः सर्वदा नित्यं प्रतिक्रिया समा भवेत् ।
विपरीतदिशि चैवं तृतीयो नियमोऽयम् ॥

For every action, there is always an equal and opposite reaction. This is the Third Law of Motion — the symmetry of all interactive forces in nature.

मंत्रः 28

गुरुत्वाकर्षणं शक्तिः सर्वद्रव्येषु विद्यते ।
द्रव्यराश्योः गुणान्तरं विपरीतदूरवर्गतः ॥

The force of gravity (गुरुत्वाकर्षण) exists between all bodies of matter. It is proportional to the product of their masses and inversely proportional to the square of the distance between them.

मंत्रः 29

ऊर्जा न जायते नैव नश्यते च कदाचन ।
रूपान्तरं प्रयाति केवलमिति नित्यनियमः स्मृतः ॥

Energy is neither created nor destroyed at any time. It only changes from one form to another. This is the eternal and inviolable Law of Conservation of Energy.

मंत्रः 30

स्थितिजा गतिजा चैव द्विविधा ऊर्जा प्रकीर्तिता ।
उच्छ्रितः पाषाणखण्डो गतिशक्तिमवाप्नुयात् ॥

Energy is of two kinds: potential (स्थितिजा ऊर्जा) and kinetic (गतिजा ऊर्जा). A stone held at height possesses potential energy; when released, it acquires kinetic energy.

मंत्रः 31

ऊष्मा ऊर्जाप्रकारः स्यात् तापवर्धनकारकः ।
चालनात् विकिरणाच्च संवहनाच्च संचरेत् ॥

Heat (ऊष्मा) is a form of energy that raises temperature. It is transmitted by three means: conduction (चालन), radiation (विकिरण), and convection (संवहन).

मंत्रः 32

प्रकाशस्तु वेगशाली सर्वाधिकः समीक्ष्यते ।
त्रिलक्ष-सहस्रमानं प्रति-निमिषं स धावति ॥

Light (प्रकाश) travels faster than anything else in the universe — three lakh सहस्रमान (three hundred thousand kilometres) per निमिष (second). Nothing in nature moves with greater speed.

मंत्रः 33

माध्यमान्तरणे प्रकाशः पथं परिवर्तयेत् ।
अपवर्तनमित्युक्तं जलचित्रविभ्रमे ॥

When light passes from one medium into another, it bends its path. This is called refraction (अपवर्तन). It is refraction that causes a stick to appear bent when placed in water.

मंत्रः 34

परावर्तनं प्रकाशस्य दर्पणे स्पष्टं भवेत् ।
आपतनकोणसमः परावर्तितकोणकः ॥

The reflection (परावर्तन) of light is clearly seen in a mirror. The angle of incidence is always equal to the angle of reflection — this is the Law of Reflection.

मंत्र: 35

कम्पनात् नादः जायते वायुतरङ्गरूपतः ।
निर्वाते नास्ति नादस्तु शून्यं ध्वनिं न वहति ॥

Sound (नाद) is born from vibration and travels as waves through the medium of air. In a vacuum (निर्वात), sound does not exist — empty space carries no sound.

मंत्र: 36

विद्युत् चलति सुचालके कुचालकं न गच्छति ।
धातवः सुचालकाः प्रायः काष्ठं कुचालकं स्मृतम् ॥

Electricity (विद्युत्) flows through conductors (सुचालक) and cannot pass through insulators (कुचालक). Metals are generally conductors; wood is known as an insulator.

मंत्र: 37

विद्युत् चलितेन सूत्रे चुम्बकक्षेत्रं जायते ।
चुम्बकचलनेन च विद्युत् एवं परस्परं बद्धौ ॥

An electric current flowing through a wire generates a magnetic field around it. Conversely, the movement of a magnet generates electricity. Electricity and magnetism are bound to each other.

मंत्र: 38

चुम्बकः लोहमाकृष्य धारयत्यतिशक्तितः ।
उत्तरदक्षिणौ ध्रुवौ चुम्बके विद्यतः सदा ॥

A magnet (चुम्बक) attracts iron with great force and holds it fast. Every magnet possesses two poles — the North Pole (उत्तरध्रुव) and the South Pole (दक्षिणध्रुव).

मंत्र: 39

द्रव्यं शक्तिसमं जातं सापेक्षतानियमतः ।
द्रव्यराशिः प्रकाशवेगवर्गतो ऊर्जा भवेत् ॥

According to the law of relativity (सापेक्षतानियम), matter and energy are equivalent. The energy contained in matter equals its mass multiplied by the square of the speed of light.

मंत्र: 40

नवीकरणीयाः ऊर्जाः यथा सूर्यवायुजलादयः ।
अनाप्याजिताः कोयलादयः ते नश्यन्ति क्षयात् ॥

Solar power, wind, and water are examples of renewable energy sources (नवीकरणीय ऊर्जा). Coal and similar fuels are non-renewable — they are exhausted by use and cannot be replenished.

मंत्रः 41

मापनं विज्ञानस्याधारः पारिमाणिकं स्मृतम् ।
दैर्घ्यं द्रव्यराशिः कालः इति त्रयं मौलिकमुच्यते ॥

Measurement is the foundation of science. Length (दैर्घ्य), mass (द्रव्यराशि), and time (काल) are the three fundamental units from which all other units of measurement are derived.

मंत्रः 42

घर्षणं विरोधि बलं क्रियाक्षेत्रे सदा भवेत् ।
गत्यावरोधकमिदं प्रयोजनकरं च तत् ॥

Friction (घर्षण) is a force that opposes motion and is present in every field of action. Though it impedes movement, it is also immensely useful — without it, we could not walk, nor could wheels turn.

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तृतीयोऽध्यायः : रसायनरहस्यम्
Chapter III · Secrets of Chemistry

मंत्रः 43

द्रव्याणां संरचनं गुणाः रूपान्तरं च सर्वशः ।
एतेषां ज्ञानं भवेद् रसायनविज्ञानकम् ॥

The study of the structure, properties, and transformations of all matter (द्रव्य) — this is Chemistry (रसायनविज्ञान). The entire universe is, in essence, one vast chemical laboratory.

मंत्रः 44

परमाणुः सर्वद्रव्यस्य लघुतमोऽंशः स्मृतः ।
परमाणुसंयोगेन अणुरेव प्रजायते ॥

The atom (परमाणु) is the smallest indivisible unit of all matter. When atoms combine with one another in definite proportions, molecules (अणु) are formed.

मंत्रः 45

शतान्यष्टाधिकानि तत्त्वानि भूतले अस्मिन् ।
तत्र चतुर्नवति स्वाभाविकानि ज्ञायन्ते ॥

More than one hundred and eighteen elements (तत्त्व) are known on this Earth. Of these, ninety-four occur naturally; the rest are created artificially in laboratories.

मंत्रः 46

परमाणुसंख्यया मूलतत्त्वं निर्धार्यते ध्रुवम् ।
धनकणसंख्यासमोऽयं परमाण्वङ्कः स उच्यते ॥

The identity of an element is determined by its atomic number (परमाण्वङ्क) — the count of positively charged nuclear particles (धनकण) in the nucleus of its atom.

मंत्रः 47

घनं द्रवं च वायुश्च इति त्रयो द्रव्यस्य रूपकाः ।
तापेन वायुः शीतेन घनः परिवर्तते क्रमात् ॥

Matter exists in three states: solid (घन), liquid (द्रव), and gas (वायु). By the application of heat, a solid becomes liquid and then gas; by cooling, the process reverses in due order.

मंत्रः 48

जलं जीवस्य जीवनम् अनन्यं द्रावकं भुवि ।
उदजनः-द्वयं दीपनैकमित्येषा अणुरचना ॥

Water (जल) is the very life of all living beings and is an incomparable solvent on Earth. Its molecular structure is two atoms of Hydrogen (उदजनः) bonded to one atom of Oxygen (दीपनवायु).

मंत्रः 49

दीपनवायुः प्राणाधारः दहनस्य च पोषकः ।
विना तेनात्र जीवनं नास्ति तथाग्निर्न जलते ॥

Oxygen (दीपनवायु, flame-supporting gas) is the very foundation of life and the sustainer of combustion. Without it, no life exists here — and no fire burns.

मंत्रः 50

उदजनः सर्वतत्त्वेषु लघुतमो विश्वपूरकः ।
तारकासु प्रचुरोऽयं जलस्यापि च कारणम् ॥

Hydrogen (उदजनः) is the lightest of all elements and the most abundant in the universe. It fills the stars and is the constituent of water — the cradle of all earthly life.

मंत्रः 51

अङ्गारः जीवनस्य तु मूलाधारकम् ।
सर्वजीवपदार्थेषु अङ्गारः प्रमुखः स्थितः ॥

Carbon (अङ्गारः, the coal-substance) is the fundamental foundation of all life. In every organic substance and in every living being, carbon holds the most prominent place.

मंत्रः 52

अङ्गारः हीरकं कृष्णलेखनं च भवति द्विधा ।
एकतत्त्वेन जाताभ्यां रूपभेदो विलक्षणः ॥

Carbon takes two remarkable forms: the diamond (हीरक), hardest of all substances, and graphite (कृष्णलेखन, the black writer). Both are made of the same element — yet their properties are worlds apart.

मंत्रः 53

वायुः यवक्षर-दीपनवायु-मिश्रणं परम् ।
अष्टसप्तत्या यवक्षरः एकविंशत्या दीपनः ॥

Air (वायु) is primarily a mixture of Yabakshara (यवक्षरः — Nitrogen) and Oxygen (दीपनवायु). Approximately seventy-eight per cent is Yabakshara and twenty-one per cent is Oxygen.

मंत्रः 54

आम्लानि क्षाराणि लवणानि च रसायने ।

तद्योगतः परस्परं उदासीनता जायते ॥

In chemistry, acids (आम्ल), bases (क्षार), and salts (लवण) are the three fundamental classes of compounds. When an acid and a base combine, they neutralise each other, forming salt and water.

मंत्रः 55

हरितगृहप्रभावेण भूमौ तापो वर्धते ।
अङ्गार-द्व्याम्लजनितं तु ऋतुपरिवर्तनं महत् ॥

By the Greenhouse Effect (हरितगृहप्रभाव), the Earth's temperature rises. Carbon dioxide (अङ्गार-द्व्याम्ल) accumulating in the atmosphere causes great changes in climate.

मंत्रः 56

भस्मधातूनां विज्ञानं धातुतन्त्रमिति स्मृतम् ।
धातुः तत्त्वात् निष्कृष्यते तदा मानवः सिद्धिमाप्नुयात् ॥

The science of extracting metals from ores is called Metallurgy (धातुतन्त्र). By this knowledge, humanity extracts metals from the earth and achieves great advancement in civilisation.

मंत्रः 57

मिश्रणं योगिकं चेति द्वयोर्भेदो विधीयते ।
योगिके तत्त्वसंयोगः स्थिरगुणोऽन्यो भवेत् ॥

A clear distinction exists between a mixture (मिश्रण) and a compound (योगिक). In a compound, elements unite chemically in fixed proportions and acquire entirely new properties distinct from those of the original elements.

मंत्रः 58

जलचक्रं भूतलस्य अनुपमं वरदायकम् ।
वाष्पीभवनात् वृष्टिः पुनरागच्छति नित्यशः ॥

The water cycle (जलचक्र) of this Earth is unparalleled in its bounty. Water evaporates, rises, condenses, and returns as rain — this cycle of life-giving water goes on perpetually without ceasing.

मंत्रः 59

विश्वं रासायनिकशाला तत्र क्रियाः अनन्यथाः ।
तारजन्म ग्रहोत्पत्तिः जीवनं च रसायनम् ॥

The universe is a chemical factory unlike any other. The birth of stars, the formation of planets, and the emergence of life itself — all these are ultimately processes of Chemistry.

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चतुर्थोऽध्यायः : जीवनरहस्यम्
Chapter IV · Secrets of Life

मंत्रः 60

वनस्पतिजन्तूनां विविधतायाः विज्ञानकम् ।
जीवविज्ञानमित्युक्तं जीवनस्य रहस्यकम् ॥

The science that studies the diversity of plants and animals and understands the mysteries of living organisms is called Biology (जीवविज्ञान) — the knowledge of all that lives.

मंत्रः 61

कोशिका सर्वजीवानां लघुतमा रचनेकिका ।
एककोशिकाः जीवाः च बहुकोशिकाः च सन्ति ॥

The cell (कोशिका) is the smallest structural and functional unit of all living beings. Some organisms consist of a single cell; others are built of many billions of cells working in concert.

मंत्रः 62

जीवनसूत्रे सर्वा आनुवंशिकी सूचना ।
पित्रोः गुणाः पुत्रे यान्ति जीवनसूत्र-द्वारकैः ॥

In the life-thread (जीवनसूत्र, DNA) resides all hereditary information. The traits of parents pass to offspring through this thread of life — the molecule that carries the instructions for all living forms.

मंत्रः 63

सर्वप्राचीना जीवाः सूक्ष्मैकाणुजीविनः ।
चतुर्विंशतिकोटिवर्षैः जाताः प्रथमं भुवि ॥

The most ancient living beings on Earth were microscopic single-celled organisms (सूक्ष्मैकाणुजीव). They appeared on this planet approximately 3.5 billion years ago — the first spark of life.

मंत्रः 64

क्रमशः विकसन्ते जीवाः हि वज्रनियमेन सर्वदा ।
योग्यतमः जीवति क्षेत्रे इति क्रमविकासः प्रतिष्ठितः ॥

Living beings develop gradually over immense spans of time according to the unyielding law of Evolution (क्रमविकास). Only the fittest survive — this is the great principle of life's unfolding.

मंत्रः 65

हरिता वनस्पतिः स्वयं भोजनं निर्मिणोति सा ।
सूर्यप्रकाशाहारेण तथा जलाद्वायोश्च संश्लेषणम् ॥

Green plants make their own food through the marvellous process of Photosynthesis (प्रकाशाहार, light-eating). Using sunlight, they synthesize food from water and carbon dioxide (अङ्गार-द्व्याम्ल) from the air.

मंत्र: 66

वनस्पतयः उत्पादकाः तु जन्तवो भोक्तारः स्मृताः ।
विघटनकर्तारः कवकाद्याश्च ऊर्जाचक्रं प्रवर्तते ॥

Plants are the producers; animals are the consumers. Fungi and bacteria are the decomposers. Together they form the food chain (आहारशृङ्खला) — and through it, the endless cycle of energy in nature.

मंत्र: 67

जीवानां भौतिकपरिसरः सह जीवनतन्त्रम् ।
जले स्थले नभसि च नानाविधाः पर्यावराः ॥

The community of living organisms together with their physical environment forms an Ecosystem (जीवनतन्त्र). Ecosystems exist in water, on land, and in the air — each one unique and irreplaceable.

मंत्र: 68

यबक्षरचक्रं अङ्गारचक्रं जलचक्रं च ।
त्रीणि पोषकचक्राणि जीवनतन्त्रे विराजते ॥

The Yabakshara cycle (यबक्षरचक्र), the Carbon cycle (अङ्गारचक्र), and the water cycle (जलचक्र) — these three great nutrient cycles sustain the web of life within every ecosystem.

मंत्र: 69

जातयः विभिन्नाः सन्ति जीवविविधता भुवि ।
एकजात्यां समानाः ते परजात्या विवाहवर्जिताः ॥

Many different species (जाति) constitute the great biodiversity (जीवविविधता) of the Earth. Members of a single species share common traits and reproduce among themselves; they do not interbreed with members of another species.

मंत्र: 70

वृक्षाणां पत्रं भोजनशाला हि सूर्यतेजसा पूर्णम् ।
हरितपदार्थेण सहितं प्रकाशपाकः सिद्ध्यते ॥

The leaf of a tree is nature's solar kitchen, filled with sunlight. Through the green substance Chlorophyll (हरितपदार्थ), the miracle of photosynthesis is perfected within every leaf.

मंत्र: 71

सूक्ष्मजीवाः रोगकर्तारः ये बाधन्ते प्राणिनः ।
केचन च उपकारकाः तु मृत्तिकाफलकृते ॥

Microbes (सूक्ष्मजीव) can cause disease and afflict living beings. Yet many others are beneficial — enriching the soil, fixing nitrogen, and decomposing waste. They are the unseen workers of the Earth.

मंत्रः 72

स्वयं जीवन् परांश्च जीवयेद् इति प्रकृतेः व्रतम् ।
एकस्य नाशः अन्यस्य जन्म हि नित्यं प्रवर्तते ॥

Live and let live — this is the vow of nature. The destruction of one is the birth of another; this cycle runs eternally. All life is interconnected in one vast breathing whole.

मंत्रः 73

लक्षशः जातयः नश्यन्ति मानवक्रियाकारणात् ।
विविधतारक्षणे यत्नः कर्तव्यः सर्वमानवैः ॥

Hundreds of thousands of species are disappearing due to human activities. It is the duty of all human beings to strive for the protection of biodiversity — for in that diversity, our own survival is embedded.

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उपसंहारः
Closing

मंत्रः 74

एकं सत् विप्राः बहुधा वदन्तीत्युक्तिः पुराणिका ।
विज्ञानमपि तथैव एका शक्तिः बहुरूपिणी ॥

The ancient saying declares: "That which exists is One; the wise speak of it in many ways." Science says the same — there is One Energy that manifests in many forms. The seer and the scientist bow before the same Truth.

मंत्रः 75

ब्रह्माण्डं शरीरं मे मनो ब्रह्म इति विज्ञानम् ।
तत्त्वमसीत्युपनिषद् एकत्वं परमं स्मृतम् ॥

The universe is my body; the laws of nature are my mind — thus speaks Science. "Thou art that" (तत्त्वमसि) — thus declares the Upanishad. Both point to the same supreme unity (एकत्व).

मंत्रः 76

यत्र विज्ञानं यत्र वेदः तत्र सत्यं प्रकाशते ।
नास्ति भेदः ज्ञानमार्गे एका दीपशिखा परा ॥

Where Science is, where the Veda is — there Truth shines forth. On the path of Knowledge there is no division; there is only one supreme flame. May that flame illuminate all seekers.

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फलश्रुतिः
The Fruits of Understanding

मंत्रः 77

य इमान् मंत्रान् पठति ध्यायति च सादरम् ।
स विश्वस्य रहस्यं वेत्ति ज्ञानदीपः प्रज्वलेत् ॥

Whoever reads and meditates upon these mantras with reverence — he comes to know the mysteries of the universe. The lamp of knowledge blazes bright within him, and darkness of ignorance retreats.

मंत्रः 78

भौतिकज्ञानेन लोके न मुह्यति कदाचन ।
प्रकृत्याः नियमज्ञस्तु सुखेन जीवति क्षितौ ॥

One who understands the laws of Physics and nature is never bewildered by the world. The knower of nature's laws lives with wisdom, clarity, and ease upon this earth.

मंत्रः 79

विज्ञानं च विवेकं च उभौ संयोजयेन् नरः ।
स एव पुरुषश्रेष्ठः मुक्तिं प्राप्नोति निश्चितम् ॥

One who unites scientific knowledge with spiritual discernment within himself — he alone is the greatest among beings. He attains liberation — freedom from suffering in this world and beyond — without any doubt.

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शान्तिपाठः
Closing Peace Chant

ॐ भौतिकं ज्ञानमाध्यात्मिकं च उभे साधयतां नरः ।
भौतिकहीनो दरिद्रः स्यात् आध्यात्महीनो भ्रमेत् सदा ॥
द्वाभ्यां युक्तः पुरुषस्तु सुखी मुक्तो भवेद् ध्रुवम् ।
ॐ शान्तिः शान्तिः शान्तिः ॥

May the seeker cultivate both material and spiritual knowledge. One who lacks material knowledge becomes impoverished; one who lacks spiritual knowledge wanders ever in delusion. He who is endowed with both attains happiness and liberation without doubt.

Om, peace, peace, peace.

इति भौतिकरहस्य उपनिषद् सम्पूर्णम्

Thus concludes the Bhautika-Rahasya Upanishad

79 Mantras in Sanskrit with English Interpretations

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शब्दकोशः
Glossary of Sanskrit Terms

संस्कृत पद Transliteration English Meaning

संस्कृत पद	Transliteration	English Meaning
अणु	*Aṇu*	Molecule — the smallest unit formed by combining two or more atoms.
अपवर्तन	*Apavartana*	Refraction — the bending of light when it passes from one medium to another.
अङ्गारः	*Aṅgāraḥ*	Carbon — the coal-substance ; the chemical element fundamental to all life.
अङ्गार-द्व्याम्ल	*Aṅgāra-dvyāmla*	Carbon dioxide — a gas released during combustion and respiration ; principal greenhouse gas.
आम्ल	*Āmla*	Acid — a substance with sour properties that releases hydrogen ions in solution.
आहारशृङ्खला	*Āhāraśṛṅkhalā*	Food chain — the sequence of organisms through which energy flows in an ecosystem.
ऊर्जा	*Ūrjā*	Energy — the capacity to do work ; exists as potential, kinetic, heat, light, and more.
ऊष्मा	*Ūṣmā*	Heat — a form of energy that raises temperature ; transmitted by conduction, convection, and radiation.
कोशिका	*Kośikā*	Cell — the smallest structural and functional unit of all living beings.
क्रमविकास	*Kramavikāsa*	Evolution — the gradual development of living beings over vast spans of time.
क्षण	*Kṣaṇa*	Minute — the unit of time equal to sixty seconds ; used here for the word "minute".
क्षार	*Kṣāra*	Base (Alkali) — a substance that neutralises acids ; has a bitter taste.
गतिजा ऊर्जा	*Gatijā Ūrjā*	Kinetic energy — the energy of motion possessed by a moving body.
गुरुत्वाकर्षण	*Gurutvākarṣaṇa*	Gravity — the mutual force of attraction between all bodies of matter.
घर्षण	*Gharṣaṇa*	Friction — the resistive force that opposes the relative motion of two surfaces.
घन	*Ghana*	Solid — a state of matter with definite shape and volume.
चालन	*Cālana*	Conduction — the transfer of heat through a material by direct contact.

संस्कृत पद	Transliteration	English Meaning
चुम्बक	*Cumbaka*	Magnet — an object that attracts iron and generates a magnetic field.
जीवनतन्त्र	*Jīvanatantra*	Ecosystem — living organisms together with their physical environment.
जीवनसूत्र	*Jīvanasūtra*	DNA — the life-thread molecule that carries all hereditary information.
जीवविविधता	*Jīvavividhatā*	Biodiversity — the variety of all life forms found on Earth.
जीवविज्ञान	*Jīvaviñāna*	Biology — the science of life and all living organisms.
जलचक्र	*Jalacakra*	Water cycle — the continuous movement of water through evaporation and rainfall.
तत्त्व	*Tattva*	Element — a pure chemical substance that cannot be broken down further.
तारापुञ्ज	*Tārāpuñja*	Galaxy — a vast cluster of billions of stars bound together by gravity.
दीपनवायु	*Dīpanavāyu*	Oxygen — the flame-supporting gas ; essential for combustion and respiration.
द्रव	*Drava*	Liquid — a state of matter with definite volume but no fixed shape.
द्रव्यराशि	*Dravyarāśi*	Mass — the quantity of matter contained in a body.
धनकण	*Dhanakaṇa*	Proton — the positively charged particle residing in the nucleus of an atom.
धातुतन्त्र	*Dhātutantra*	Metallurgy — the science of extracting and refining metals from ores.
नवीकरणीय ऊर्जा	*Navīkaraṇīya Ūrjā*	Renewable energy — energy from sources that replenish naturally (sun, wind, water).
निमिष	*Nimiṣa*	Second — the unit of time ; used here as the Sanskrit word for “second”.
निर्वात	*Nirvāta*	Vacuum — a space entirely devoid of matter ; sound cannot travel through it.
परमाणु	*Paramāṇu*	Atom — the smallest indivisible unit of a chemical element.
परमाण्वङ्क	*Paramāṇvaṅka*	Atomic number — the count of positively charged particles in an atom’s nucleus.
परावर्तन	*Parāvartana*	Reflection — the bouncing back of light from a surface.
प्रकाश	*Prakāśa*	Light — electromagnetic radiation visible to the human eye ; the fastest known thing.
प्रकाशवर्षम्	*Prakāśavarṣam*	Light-year — the distance light travels in one year ; used to measure cosmic distances.

संस्कृत पद	Transliteration	English Meaning
प्रकाशाहार	*Prakāśāhāra*	Photosynthesis — the process by which green plants make food using sunlight.
बल	*Bala*	Force — that which changes or tends to change the state of rest or motion of a body.
ब्रह्माण्ड	*Brahmāṇḍa*	Universe — the entire cosmos, from the smallest atom to the largest galaxy.
भौतिकविज्ञान	*Bhautikaviñāna*	Physics — the science of matter, energy, motion, and natural forces.
मंत्रः	*Mantraḥ*	Mantra — a sacred verse; here, each numbered verse of this Upanishad.
मन्दाकिनी	*Mandākinī*	Milky Way — the galaxy in which our solar system is located.
महाविस्फोट	*Mahāvisphota*	Big Bang — the great explosion from which the entire universe originated.
महासंकोचः	*Mahāsaṅkocaḥ*	Big Crunch — the hypothetical final collapse of the universe.
रसायनविज्ञान	*Rasāyanaviñāna*	Chemistry — the science of the structure, properties, and transformation of matter.
लवण	*Lavaṇa*	Salt — a compound formed when an acid is neutralised by a base.
विकिरण	*Vikirṇa*	Radiation — the emission and transmission of energy through electromagnetic waves.
विद्युत्	*Vidyut*	Electricity — the flow of electric charge through a conductor.
वायु	*Vāyu*	Gas / Air — a state of matter with no fixed shape or volume; also means “air”.
वायुमेघः	*Vāyumeghah*	Gas cloud (Nebula) — a vast cloud of gas and dust in space; birthplace of stars.
संवहन	*Saṃvahana*	Convection — the transfer of heat by movement of a heated fluid or gas.
सहस्रमानम्	*Sahasramānam*	Kilometre — “a thousand standard measures”; the Sanskrit rendering of kilometre.
सापेक्षतानियम	*Sāpekṣatāniyama*	Law of Relativity — matter and energy are equivalent forms of each other.
सुचालक	*Sucālaka*	Conductor — a material through which electricity or heat flows freely.
सूक्ष्मजीव	*Sūkṣmajīva*	Microbe — a microscopic living organism, including bacteria and viruses.
सूक्ष्मैकाणुजीव	*Sūkṣmaikāṇujīva*	Bacterium — the most ancient form of single-celled microscopic life.
सौरवायु	*Sauravāyu*	Helium — the sun-born gas; second lightest and second most abundant element.

संस्कृत पद	Transliteration	English Meaning
स्थितिजा ऊर्जा	*Sthitijā Ūrjā*	Potential energy — stored energy of a body due to its position or state.
हरितगृहप्रभाव	*Haritagṛhaprabhāva*	Greenhouse effect — the warming of Earth caused by heat trapped in the atmosphere.
हरितपदार्थ	*Haritapadārtha*	Chlorophyll — the green pigment in plant leaves that enables photosynthesis.
यबक्षरः	*Yabakṣaraḥ*	Nitrogen — the stable, inert gas making up about 78% of Earth's atmosphere.
उदजनः	*Udajanaḥ*	Hydrogen — the water-former; lightest and most abundant element in the universe.
कुचालक	*Kucālaka*	Insulator — a material that does not allow electricity or heat to pass through.
त्वरण	*Tvaraṇa*	Acceleration — the rate of change of velocity of a body.
जीवनवेद	*Jīvanaveda*	Life-Veda — the Vedic name for the science of Biology.
शक्तिवेद	*Śaktiveda*	Energy-Veda — the Vedic name for the science of Physics.
ब्रह्माण्डवेद	*Brahmāṇḍaveda*	Cosmos-Veda — the Vedic name for the science of Cosmology.
द्रव्यवेद	*Dravyaveda*	Matter-Veda — the Vedic name for the science of Chemistry.

मंत्रसूची
Index of Mantras

मंत्रः	प्रथम पंक्ति	Subject / विषय
मंत्रः	प्रथम पंक्ति	Subject / विषय
शान्तिपाठः — Opening Peace Chant		
—	ॐ भौतिकं ज्ञानमाध्यात्मिकं च…	शान्तिपाठः
मङ्गलाचरणम् — Invocation		
1	ॐ सत्यं ज्ञानमनन्तं यद् ब्रह्म…	Salutation to Brahman-as-Knowledge
2	यस्माज्जातं जगत्सर्वं…	Brahman as the Ground of Existence
3	चत्वारो ज्ञानमार्गाः ते साधकैः…	The Four Paths of Knowledge
4	गुरवे ज्ञानदीपाय नमस्कारः…	Salutation to the Teacher
प्रथमोऽध्यायः — Secrets of the Cosmos		
5	अनन्तकालात्पूर्वं च एकं बिन्दुम्…	The Primordial Point
6	तस्माद् बिन्दोर्महाविस्फोटो…	The Great Explosion (Big Bang)
7	उदजनः सौरवायुश्च प्रथमं…	Hydrogen and Helium — First Elements
8	प्रसारते विश्वमेतत् सर्वतो…	The Expanding Universe
9	घनतायाः परिमाणे सत्यतिस्वल्पके…	The Big Crunch — Fate of the Universe
10	कोटिशो गणनातीताः तारापुञ्जाः…	Countless Galaxies
11	क्षीरनद्या इयं पुञ्जो मन्दाकिनी…	The Milky Way
12	प्रकाशवर्षनाम्ना तु मापनं…	The Light-Year
13	सूर्याद् भूमेस्तु प्रकाशः…	Sunlight travels in eight क्षण (minutes)
14	यस्मात् तारात् प्रकाशस्तु…	Seeing the Past — Distant Stars
15	जात्यन्ति ज्वलन्ति चैव तारकाः…	Birth and Death of Stars ; Gas Clouds
16	वर्णेन तारकातापं जानीयाद्…	Stellar Temperature and Colour
17	सूर्यः पीतवर्णो मध्यः…	The Sun — Hydrogen Fusion
18	अष्टौ ग्रहाः परिभ्रमन्ति…	Eight Planets ; Reflected Light
19	पृथ्वी तु विलक्षणा ग्रहेषु…	Earth — The Singular Planet
20	पृथ्वी भ्रमति स्वाक्षे च…	Rotation, Revolution, and Seasons
21	सर्वेष्वणुषु विद्यन्ते लोहरक्तस्य…	Iron from Stellar Explosions
22	यद् दृश्यते यन्न दृश्यते…	The Universe as One Energy
द्वितीयोऽध्यायः — Secrets of Physics		
23	प्रकृतिस्थाः सर्वघटनाः…	Physics — Knowledge of Nature’s Laws
24	गतिः क्रिया प्रतिक्रिया च…	Three Laws of Motion — Overview
25	विरामस्थं सदा तिष्ठेत्…	First Law of Motion — Inertia
26	द्रव्यराशिं त्वरणं च परस्परं…	Second Law — Force = Mass × Acceleration
27	क्रियायाः सर्वदा नित्यं…	Third Law — Action and Reaction

मंत्रः	प्रथम पंक्ति	Subject / विषय
28	गुरुत्वाकर्षणं शक्तिः...	Law of Universal Gravitation
29	ऊर्जा न जायते नैव नश्यते...	Conservation of Energy
30	स्थितिजा गतिजा चैव...	Potential and Kinetic Energy
31	ऊष्मा ऊर्जाप्रकारः स्यात्...	Heat and Its Three Modes of Transfer
32	प्रकाशस्तु वेगशाली...	Speed of Light — three lakh सहस्रमान per निमिष
33	माध्यमान्तरणे प्रकाशः...	Refraction of Light
34	परावर्तनं प्रकाशस्य...	Reflection of Light
35	कम्पनात् नादः जायते...	Sound and Vibration
36	विद्युत् चलति सुचालके...	Conductors and Insulators
37	विद्युत् चलितेन सूत्रे...	Electricity and Magnetism
38	चुम्बकः लोहमाकृष्य...	The Magnet and Its Poles
39	द्रव्यं शक्तिसमं जातं...	Matter-Energy Equivalence
40	नवीकरणीयाः ऊर्जाः...	Renewable and Non-renewable Energy
41	मापनं विज्ञानस्याधारः...	Fundamental Units of Measurement
42	घर्षणं विरोधि बलं...	Friction
तृतीयोऽध्यायः — Secrets of Chemistry		
43	द्रव्याणां संरचनं गुणाः...	Chemistry — Science of Matter
44	परमाणुः सर्वद्रव्यस्य...	Atom and Molecule
45	शतान्यष्टाधिकानि तत्त्वानि...	Chemical Elements
46	परमाणुसंख्यया मूलतत्त्वं...	Atomic Number and Positively Charged Particle
47	घनं द्रवं च वायुश्च...	Three States of Matter
48	जलं जीवस्य जीवनम्...	Water — Molecule and Solvent
49	दीपनवायुः प्राणाधारः...	Oxygen — Foundation of Life
50	उदजनः सर्वतत्त्वेषु...	Hydrogen — Lightest and Most Abundant
51	अङ्गारः जीवनस्य तु...	Carbon — Foundation of Life
52	अङ्गारः हीरकं कृष्णलेखनं...	Diamond and Graphite — Two Forms of Carbon
53	वायुः यवक्षर-दीपनवायु-मिश्रणं...	Nitrogen (यवक्षरः) and Oxygen in Air
54	आम्लानि क्षाराणि लवणानि...	Acids, Bases, and Salts
55	हरितगृहप्रभावेण भूमौ...	Greenhouse Effect and Climate Change
56	भस्मधातूनां विज्ञानं...	Metallurgy
57	मिश्रणं योगिकं चेति...	Mixture vs Compound
58	जलचक्रं भूतलस्य...	The Water Cycle
59	विश्वं रासायनिकशाला...	The Universe as a Chemical Factory
चतुर्थोऽध्यायः — Secrets of Life		
60	वनस्पतिजन्तूनां विविधतायाः...	Biology — Science of Life
61	कोशिका सर्वजीवानां...	The Cell — Unit of Life
62	जीवनसूत्रे सर्वा आनुवंशिकी...	DNA — The Life-Thread

मंत्रः	प्रथम पंक्ति	Subject / विषय
63	सर्वप्राचीना जीवाः...	First Life — Bacteria (3.5 billion years ago)
64	क्रमशः विकसन्ते जीवाः...	Evolution — Survival of the Fittest
65	हरिता वनस्पतिः स्वयं...	Photosynthesis
66	वनस्पतयः उत्पादकाः...	Food Chain — Producers and Consumers
67	जीवानां भौतिकपरिसरः...	Ecosystem
68	यबक्षरचक्रं अङ्गारचक्रं...	The Three Great Nutrient Cycles
69	जातयः विभिन्नाः सन्ति...	Biodiversity and Species
70	वृक्षाणां पत्रं भोजनशाला...	The Leaf, Solar Kitchen and Chlorophyll
71	सूक्ष्मजीवाः रोगकर्तारः...	Microbes — Harmful and Beneficial
72	स्वयं जीवन् परांश्च जीवयेत्...	Live and Let Live — Nature's Vow
73	लक्षशः जातयः नश्यन्ति...	Biodiversity Conservation
उपसंहारः — Closing		
74	एकं सत् विप्राः बहुधा...	One Truth — Science and Veda Unite
75	ब्रह्माण्डं शरीरं मे...	Tat Tvam Asi — Thou Art That
76	यत्र विज्ञानं यत्र वेदः...	One Flame of Knowledge
फलश्रुतिः — Fruits of Understanding		
77	य इमान् मंत्रान् पठति...	The Lamp of Knowledge Blazes
78	भौतिकज्ञानेन लोके न मुह्यति...	The Knower of Laws Lives in Wisdom
79	विज्ञानं च विवेकं च उभौ...	Unity of Science and Spirit — Liberation
शान्तिपाठः — Closing Peace Chant		
—	ॐ भौतिकं ज्ञानमाध्यात्मिकं च...	शान्तिपाठः